

Work Order ID 146982

Tuesday, May 24, 2016 10:38:46 AM

146982

Page 1

Item ID: D3531-1

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Item Name: Bracket

Stop ***NS2***

Start Date: 5/24/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 6/3/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan: MLS

Date: MAY 26 2016 Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3531	B								
100	FLOW WATER JET	0.46							
100									
Waterjet	Memo	0.12							
FLOW CNC Waterjet	1-Cut as per Dwg D3531								
	Dwg Rev: <u>B</u>								
	Prog Rev: <u>B</u>								
	2-Deburr if necessary								
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
110									
QC	Memo	0.04							
Quality Control									

PR 06/12/2016

DAS
45
9-89

DAS
45
9-89

PR 06/12/2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :							
Misidentified	☐	Past Due	☐								

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Page 3

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Stop ***NS2***

Item Name: Bracket

Start Date: 5/24/2016 Start Qty: 4.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Chemical Conversion Coat per QSI005 4.1	0.00							
150						9	0		Sh
HandFinish	Memo	0.12							16/06/29
Hand Finishing									
160	QC7-Inspect Chemical Conversion Coat	0.00							DAS 38 9-89
160						9			JUN 30 2016
QC	Memo	0.04							
Quality Control									
170	Identify as per dwg & Stock Location: _____	0.00							
170									DAS 6 9-89
Packaging	Memo	0.04							JUL 04 2016
Packaging	LOCATION : GA								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause			FAULT CATEGORY					
Environment ☐		No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐		Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐		Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
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Material ☐		Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐		Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐		Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐		Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐		Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐		Manufacturing Process ☐	OTHER : _____					
Misidentified ☐		Past Due ☐						

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.40

Quality Control

DAS
21
9-89

JUL 04 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;"></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Picklist Print

Tuesday, May 24, 2016 10:38:46 AM

Page 1

Work Order ID: 146982

146982

Parent Item: D3531-1

D3531-1

Parent Item Name: Bracket

Start Date: 5/24/2016

Required Date: 6/3/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:A New Issue 07-09-24 EC verified by DD
12.10.24 PER DWG REV.B DD VERF:JLM

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6S.040		Purchased		No		100	sf	176.2000	0.3783	1.592842			

M6061T6S 040

6061-T6 .040 Sheet

Location

Loc Qty

Loc Code

MAT021

176.2

m132037

24.9

m133548

71.3

m134774

80

PR 06/12/2016
DAS
45
289

4.2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
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Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified ☐	☐	Past Due	☐				

DART AEROSPACE LTD		Work Order:	146982
Description: Bracket		Part Number:	D3531-1
Inspection Dwg: D3531 Rev: B		Page 1 of 1	

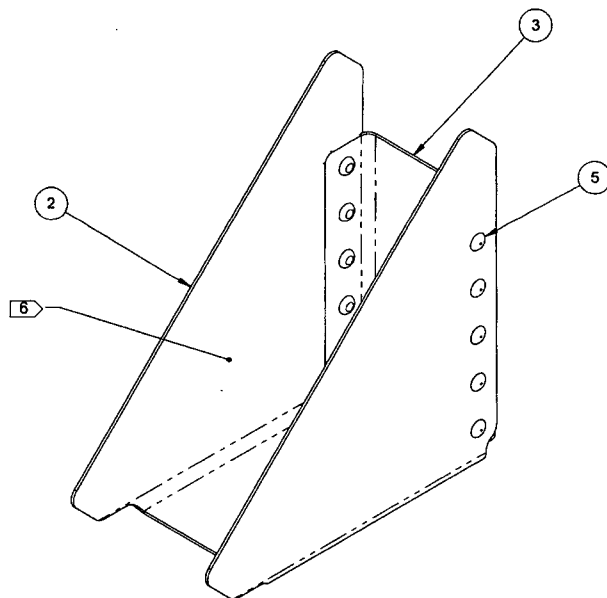
FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.196	+0.005/-0.001	0.198	✓		DC-02	
Ø0.129	+0.005/-0.001	0.130	✓		tape	
0.33	+/-0.030	0.336	✓			
2.840	+/-0.010	2.840	✓			
1.70	+/-0.030	1.708	✓			
1.45	+/-0.030	1.458	✓			
0.38	+/-0.030	0.379	✓			
0.19	+/-0.030	0.193	✓			
5.88	+/-0.030	5.880	✓			
12.66	+/-0.030	12.66	✓			
0.600	+/-0.010	0.600	✓			
1.77	+/-0.030	1.77	✓			
1.24	+/-0.030	1.24				
4.16	+/-0.030					

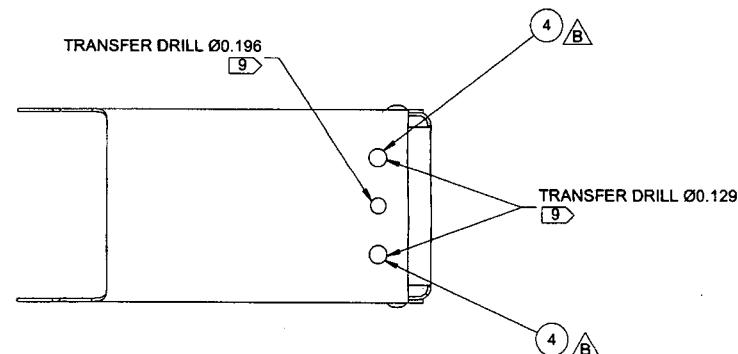
Measured by: PR / DAS 45 9-89	Audited by: DAS 38 9-89	Preliminary Approval:
Date: 06/12/2016	Date: 01/02/11 NAF	Date:

Rev	Date	Change	Revised by	Approved
A	07.10.15	New Issue	KJ/EC/DD	
B	13.02.27	Dwg Rev updated	KJ	AA

ITEM NO.	QTY. -041	PART NUMBER	DESCRIPTION
1	X	D3531-041	BRACKET ASSEMBLY
2	1	D3531-1	BRACKET
3	1	D3531-3	BRACKET FRONT PLATE
4	2	MS20426AD4-4	RIVET
5	10	MS20470AD4-4	RIVET



D3531-041 BRACKET ASSEMBLY

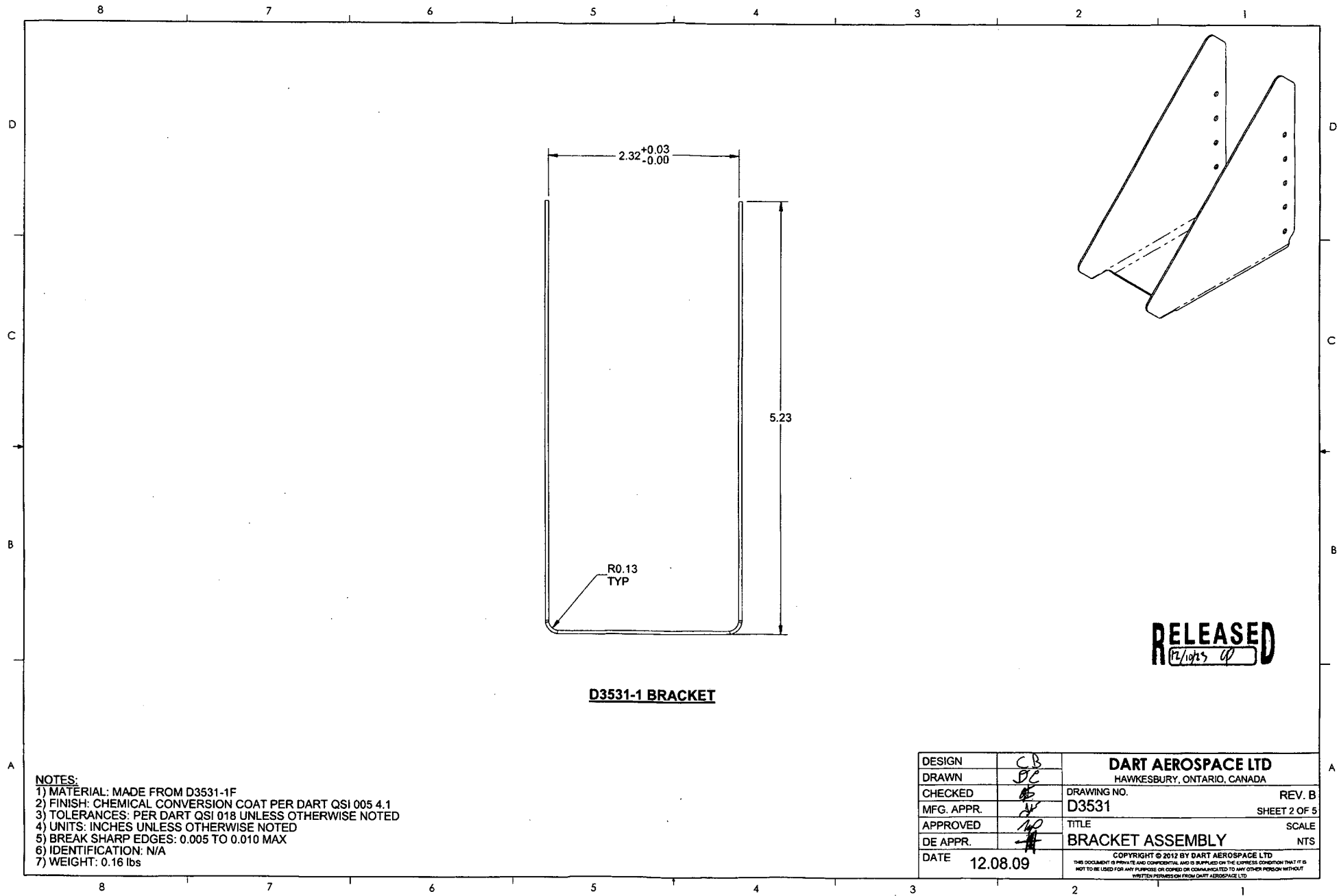


**D3531-041 BRACKET ASSEMBLY
BOTTOM VIEW**

RELEASED
12/18/13 9'
PER E/W 12-669

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: POWDER COAT ASSEMBLY "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1 ON INSIDE OF BRACKET ASSEMBLY, WHERE INDICATED
 - 7) WEIGHT: 0.22 lbs
 - 8) ASSEMBLE PER DART QSI 003
 - 9) TRANSFER DRILL HOLES FROM D3531-1 BRACKET THROUGH D3531-3 BRACKET FRONT PLATE BEFORE FINISHING

B	CHANGE BOTTOM RIVETS FROM MS20470AD4-4 TO MS20426AD4-4, ZN C2-1, C5-3. ADD CSK, ZN C5-3. CORRECT BEND LINE DIM, ZN C4-3. UPDATE TO CURRENT DWG STANDARDS, REF PAR 10-47.	DC	12.08.09
A	NEW ISSUE	CB	07.06.19
REV.	DESCRIPTION	BY	DATE
DESIGN	CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DC		
CHECKED	DC	DRAWING NO.	REV. B
MFG. APPR.	DC	D3531	SHEET 1 OF 5
APPROVED	DC	TITLE	SCALE
DE APPR.	DC	BRACKET ASSEMBLY	NTS
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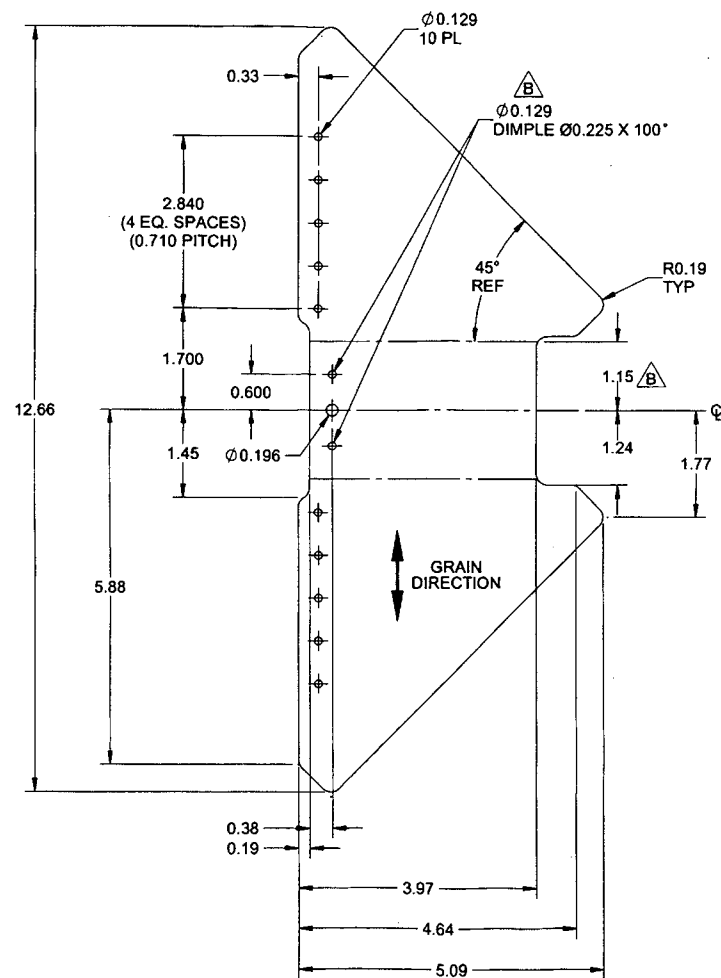


D3531-1 BRACKET

RELEASED
12/19/15

- NOTES:**
- 1) MATERIAL: MADE FROM D3531-1F
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 0.16 lbs

DESIGN	CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	BC		
CHECKED	DE	DRAWING NO.	REV. B
MFG. APPR.	AV	D3531	SHEET 2 OF 5
APPROVED	140	TITLE	SCALE
DE APPR.	140	BRACKET ASSEMBLY	NTS
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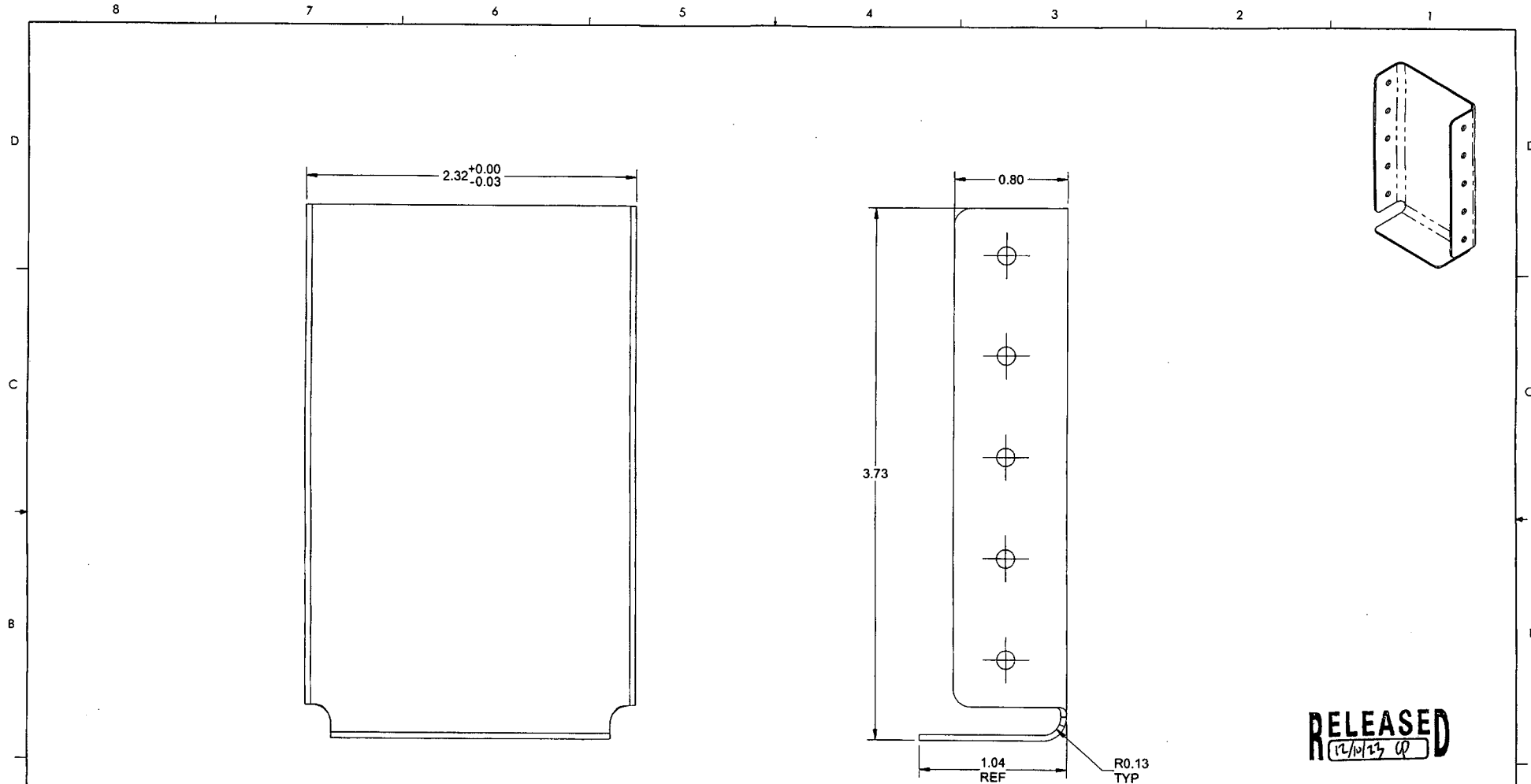
NOTES:

- 1) MATERIAL: 6061-T6/T62 ALUMINUM SHEET, 0.040 THICK
PER QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209
REF DART SPEC M6061T6S.040
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.16 lbs

D3531-1F FLAT PATTERN

DESIGN	CB	DART AEROSPACE LTD	
DRAWN	SC	HAWKESBURY, ONTARIO, CANADA	
CHECKED	DE	DRAWING NO.	REV. B
MFG. APPR.	AV	D3531	SHEET 3 OF 5
APPROVED	12	TITLE	SCALE
DE APPR.	12	BRACKET ASSEMBLY	NTS
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RELEASED
12/14/23



D3531-3 BRACKET FRONT PLATE

NOTES:

- 1) MATERIAL: MADE FROM D3531-3F
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.06 lbs

DESIGN	CB	DART AEROSPACE LTD	
DRAWN	BC	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JE	DRAWING NO.	REV. B
MFG. APPR.	JE	D3531	SHEET 4 OF 5
APPROVED	MD	TITLE	SCALE
DE APPR.	MD	BRACKET ASSEMBLY	NTS
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RELEASED
12/10/13 QP

